GLOBAL INITIATIVE
The Economic Case

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In his introductory article in this Journal (Vol. 11, Issue No. 25) on the Global Initiative for the Elimination of Avoidable Blindness, Bj rn Thylefors, Director of the WHO Programme for the Prevention of Blindness and Deafness, drew attention to the huge burden imposed by blindness, particularly in developing countries. Not only are the numbers of blind and visually disabled increasing, their number could actually double by the year 2020 unless urgent action is taken. And the tragedy is that most of this is unnecessary – 80% of blindness is either preventable or curable. Efficient, effective and well-proven interventions are available to reduce dramatically this increasing threat. Equally important, although probably not so well known, is the fact that these interventions include some of the most cost effective available in the whole of the health sector. This needs to be given much greater emphasis if eye care services are to compete successfully for their fair share of health service budget.

The Economic Case

So what exactly is the economic case for investing in blindness prevention measures? Economic analysis in health projects is ultimately concerned with comparing the costs with the related benefits. Ideally this is done within the framework of formal **cost benefit analysis** whereby the costs and benefits associated with the project over time are identified, quantified and discounted.

This type of approach was adopted by the World Bank in assessing the economic impact of the African Programme for Onchocerciasis Control.[1] The Programme, which will eliminate onchocerciasis (river blindness) as a public health hazard in Africa, was shown to deliver an economic rate of return of 17%. This is an excellent return by any standards and is all the more impressive in that the study only took account of the reduction in onchocerciasis-related blindness and the associated increase of the productive labour force as the principal economic benefit. No account was taken of oncho-related skin morbidity, which other studies[2] have shown to impose a substantial burden on those infected and on society in general. Inclusion of these impacts would have demonstrated even higher economic benefits.

One of the limitations of using full cost benefit analysis in assessing health sector programmes is the difficulty in quantifying all associated costs and benefits. Some of the benefits of blindness prevention and cure can be reasonably measured, such as savings in medical care costs, rehabilitation and education costs and production gains from return to work. What is more problematic is quantifying and valuing the less easily defined benefits such as improvement in well-being. For this reason, another approach known as **cost utility analysis** is often used to assess the comparative impact of health interventions.

Disability Adjusted Life Years

This approach was promoted in the 1993 World Bank Development Report, *Investing in Health*,[3] and is based on a single measure of health status known as Disability Adjusted Life Years (DALYs). It is a combined indicator of the time lived with a disability and time lost due to premature mortality. It involves assigning weights to different health states and multiplying these by the number of years during which that state persists – it is thus both a qualitative and quantitative measure. When this measure is considered with the availability and costs of interventions, it leads to an assessment of their comparative cost-effectiveness, i.e., cost per DALY saved.

When applied to the leading causes of blindness this yields some extremely encouraging results. The cost utility of more than 50 specific health interventions were examined as part of World Bank research.[4] This showed cataract surgery to be one of the most cost-effective of all public health interventions. The cost per DALY saved ranged from US$15 to just over US$30, placing it in one of the lowest bands. More recent evidence from the Lumbini comprehensive blindness programme in Nepal dramatically confirms this, where the cost per DALY saved was only US$5.[5] This is an exceptional example of the cost-effectiveness of cataract interventions, and clearly local conditions will determine the precise cost of DALYs saved. Although it is a disease of advancing age in the majority of cases, its cost-effectiveness derives from characteristics such as speed of operation, the potential for high volume cataract surgery and the high success rate.

But it is not only the treatments of onchocerciasis and cataracts which are so clearly worthwhile in economic terms. Various studies[6] into the cost-effectiveness of interventions to reduce xerophthalmia, a major cause of childhood blindness, show comparable impacts. Thus, interventions based on measles immunisation, fortification of monosodium glutamate (MSG) with vitamin A and mass dosage with vitamin A capsules achieve costs per Daly saved in the range of US$2–US$29.

There is less available evidence on the cost-effectiveness/utility of traditional interventions for the treatment of trachoma, the leading cause of preventable blindness. However, one very detailed study[7] of the trachoma control programme in Myanmar using handicap-adjusted life years (HALYs) as the composite measure, rather than DALYs, demonstrated savings of US$3 to US$11 per HALY, based on marginal cost utility for non-surgical and surgical interventions respectively.

Table 1: Cost Benefit/Cost Utility of Eye Care Interventions

Eye Disease	Cost per DALY saved (US$)
Cataract	5–32
Childhood blindness (xerophthalmia)	
– Measles immunizaton	2–15
– Vitamin A capsules (mass doses)	9
– Fortification	29
Trachoma	3–11 (HALY)
Onchocerciasis	17% (Economic Rate of Return)

Conclusion

All this evidence shows that outstanding returns are available from interventions in the key eye disease areas that have been identified as priorities for action in the Global Initiative. Not only are effective

interventions available but they demonstrate tremendous cost benefit/cost utility when compared to other well-accepted health interventions.

It is vital that the economic case supporting the Global Initiative is widely disseminated to maximise resource mobilisation and ensure that blindness prevention programmes receive the priority they deserve in international health programmes.

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Benefits and Costs of Preventing, Treating and Controlling Blindness: A Preliminary Review and Annotated Bibliography
by Health Economist (WHO/ICEH)
Margaret Thomas.
Available via e-mail only from International Centre for Eye Health at
e.cartwright@ucl.ac.uk

Readership Survey – Prize Draw Winner

Congratulations to our winner,

Nurse C A Puka, Tanzania.

Our thanks to all who responded to the questionnaire.

THE ROYAL COLLEGE OF OPHTHALMOLOGISTS
DIPLOMA IN OPHTHALMOLOGY EXAMINATION

The Royal College of Ophthalmologists has introduced an examination leading to the award of the Diploma in Ophthalmology (DRCOphth). The examination will be held twice a year, in June and November.

This Diploma is aimed at those not wishing to pursue a career as a consultant ophthalmologist in the United Kingdom. It should, therefore, be of interest to all doctors with an interest in ophthalmology working outside the European Union.

Details are available from the Examinations Office, The Royal College of Ophthalmologists, 17 Cornwall Terrace, London NW1 4QW.

The Prevalence of Glaucoma in the Melbourne Visual Impairment Project

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Purpose: The purpose of the study was to determine the prevalence of glaucoma in Melbourne, Australia.

Methods: All subjects were participants in the Melbourne Visual Impairment Project (Melbourne VIP), a population-based prevalence study of eye disease that included residential and nursing home populations. Each participant underwent a standardised eye examination, which included a Humphrey visual field test, tonometry, fundus examination including fundal photographs, and a medical history interview. Glaucoma status was determined by a masked assessment and consensus adjudication of visual fields, optic disc photographs, intraocular pressure and glaucoma history.

Results: A total of 3271 persons (83% response rate) participated in the residential Melbourne VIP. The overall prevalence rate of definite primary open-angle glaucoma in the residential population was 1.7% (95% confidence limits = 1.21, 2.21). Of these, 50% had not been diagnosed previously. Only two persons (0.1%) had primary angle-closure glaucoma and six persons (0.2%) had secondary glaucoma. The prevalence of glaucoma increased steadily with age from 0.1% at ages 40 to 49 years to 9.7% in persons aged 80 to 89 years. There was no relationship with gender. The authors examined 403 (90.2% response rate) nursing home residents. The age standardised rate for this component was 2.36% (95% confidence limits = 0, 4.88).

Conclusions: The rate of glaucoma in Melbourne rises significantly with age. With only half of patients being diagnosed, glaucoma is a major eye health problem and will become increasingly important as the population ages.

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